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PRINCIPAL INVESTIGATOR: D. M. Parkin, M.D.

CONTRACTING ORGANIZATION: International Agency for Research on Cancer
Lyon Cedex 08 France

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Data management procedures to monitor field activities and data quality have been set up and data bases of the population recruited, detected positive and examined in the referral clinics, are maintained in real time.

The intervention is fully operational since March 1996.

Ninety-seven percent of the over 55,000 women offered physical examination of the breasts were examined and interviewed; 1544 were referred to the tumor clinics for further evaluation (positivity rate 2.8%). Only 23% complied with referral, among these 14 cases of breast cancer were diagnosed (detection rate: 0.2 per thousand).

Enumeration and identification of the control population is on-going.

The objectives of the second year project have been reached with the exception of 5 month delay of the intervention.

The very low compliance with referral is the only unexpected result and, potentially, a cause of failure of the intervention. Reasons and remedies of non-referrals are being sought.

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D M. Park 17/10/96

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Introduction

Breast cancer (BC) accounts for 720,000 new cases per year (Parkin et al., 1993), and it is the most frequent cancer in women. Incidence rates are rising in many countries, particularly in developing world (Coleman and Estève, 1993). It seems that these trends are likely to continue, since the current pattern of later childbearing, decreasing fertility, and 'westernization' of diets will all be associated with increased risks.

At present, our knowledge of environmental risk factors does not permit formulation of any practical primary prevention programs. The introduction of adjuvant therapy with Tamoxifen has improved survival of older cases however, further improvements in surgical techniques, or in radiotherapy, are very unlikely to provide more than marginal changes in mortality rates.

A much greater decrease in deaths from breast cancer is achievable through screening programs which lead to detection of cancers which are smaller, at an earlier stage, and less malignant than those which surface clinically. Several randomized trials of screening for breast cancer have been carried out; in the majority the screening modality used was mammography, with or without physical examination of the breasts. There is a clear consensus that such screening programs are capable of decreasing the risk of mortality from breast cancer (Miller et al., 1990; Day, 1991). In the Swedish two-country trial using single view mammography, screening every 30 months, breast cancer mortality was reduced by some 40% in screened women over the age of 50 (Tabár et al., 1985).

However, population screening programs which depend upon mammography require extensive provision of expensive technology and highly trained radiologists and radiographers. The cost per life-year saved is therefore relatively high (Barnum and Greenberg, 1991), and clearly an inappropriate use of health care resources for many countries (WHO,1984).

Furthermore, it seems that mammographic screening is relatively inefficient for women under the age of 50, either because their cancers are faster growing, or because the sensitivity of mammography in the pre-menopausal breast is relatively low.

The alternative screening strategies which have been proposed are physical examination of the breasts (PE), and breast self-examination (BSE). Researchers of the University of Washington are conducting a large scale trial of BSE among 300,000 textile workers in Shanghai, China. This trial is scheduled to last 9 years. PE has never been used as the sole modality of screening, so that its effectiveness is not known. However, indirect evidence based on estimates of the accuracy of PE relative to mammography suggests that this type of examination could reduce mortality rates by 2/3 to 3/4 of that achievable by mammographic screening in women aged 50 or more. PE alone may be effective in younger women, in whom mammographic screening has not yet demonstrated any benefit. The working group who reviewed in 1979 the results of the Breast Cancer Detection Demonstration Project, the first large non-experimental evaluation of mammography, stated that high priority should be given to the evaluation of PE as a single screening modality (Beahrs *et al.*, 1979). However, the recommendation was not followed by action until the project described here, possibly because of the rapid spreading of mammography in most developed countries which challenged the feasibility of an unscreened control group.

Purpose of the present work is to establish 1) whether a program of mass screening by PE performed by trained paramedical personnel can be set up in a developing country as part of the routine activity of first level health services, and 2) whether and to what extent such a program can reduce mortality from breast cancer. The location is Metro Manila and Rizal Province of the Philippines. This population has a relatively high incidence of breast cancer, considerably above other Asian populations, and comparable to that in southern Europe.

Body

The study is a randomised controlled trial of the effect of annual physical examination (PE) of the breasts by trained nurses/midwives in reducing mortality from breast cancer. The study area comprises the central, more urbanized municipalities of the National Capital Region (Districts I, II, III and IV), which includes 12 municipalities each having municipal health centres in township areas, and barangay health stations in more rural areas. In 1990, the estimated size of the female population aged 35-64 was about 340,000.
The units of randomization are health centers (HC's) within the selected municipalities of the Manila - Rizal area.
Women aged 35-64 years who are resident in the intervention HC areas will be offered a total of 5 annual breast examinations, carried out by specialized midwives/nurses. At the first visit, these women are also instructed in the technique of breast self-examination (BSE) and provided with a leaflet in the local language explaining the purpose and methodology of BSE. Reinforcement of BSE knowledge will be given at subsequent visits.

Women in control receive no active intervention, but are exposed to the general health education campaigns carried out by municipal authorities and voluntary bodies.

Examiners are trained using a programme already developed and tested in the Philippines, making use of silicone breast models produced by Mammacare™. Training is repeated every other year for the duration of the intervention. Women eligible for screening are invited to participate through a variety of mechanisms but mainly by home visits.

At first visit women are interviewed to record demographic variables and risk factors for breast cancer. Instruction in BSE is given and PE performed. Demographic characteristics of women who refuse PE are also recorded.

Women with detected abnormalities are referred for final diagnosis to special clinics, made available in 3 major hospitals staffed by project personnel.

During 1995 a coordinating centre has been set up. Two hundred and two Health Centers were randomized to intervention and control arms. Questionnaire, forms and procedures were developed. Nurses have been recruited and trained to perform PE.

Research achievements and findings during the second year of the project.

A) Intervention

New administrative procedures which define the responsibilities and duties of the various bodies involved in delivering health care, have been implemented by the Philippine Government. These imply a periodical substantial reshuffling of the field personnel between HCs and have therefore affected the field work and organization. Moreover, it was soon evident that regular personnel of HCs could not reach the scheduled rate of 14,000 women examined per month. Therefore additional nurses were recruited and trained to work full-time for the project (FTNs). These became operative in March 1996.

Accomplishments at 31 August 1996.

No. of women offered the intervention and interviewed	55,702	
No refused PE	1,753	3.1%
No interviewed and examined	53,949	
Average monthly recruitment rate since FTN operative	10,218	
Number of women detected positive and referred to tumor clinics	1,544	
positivity rate:		2.9%
No. referred who attended clinic:	357	
percent compliance with referral:		23.1%
No. with final diagnosis:	224	
Outcome of final diagnoses:		
no mass	131	58.5%
malignant breast cancer:	14	6.3%
benign breast disease:	79	35.3%

B) List of individuals in the target population

It was originally planned to rely on electoral rolls as the basis for establishing the list of women in the target population. It was also planned to bring these rolls up-to-date during the screening activities. Unfortunately it became clear that the population coverage of electoral rolls is rather poor and lists are being established for the Health Centre areas by a special house to house census as part of the project itself.
Nominative lists of the target population are necessary to allow for non-compliance in the intervention arm and to follow-up the reference control group.

Population lists were produced in 1995 for the intervention areas by the house-to-house census and are being compiled for the control areas; however, the analysis of the data so far collected and computerised shows that the lists are still largely incomplete.

C) Follow-up

Procedures in the two cancer registries serving the study populations (Manila-PCS and Rizal-DOH) have been improved, so that general case finding is taking place in a more timely manner than previously. Additional staff have been recruited to trace breast cancer cases, and trained in the use of new abstract forms, which include extensive information on extent of disease (tumour size, spread and nodal status). Ascertainment of breast cancer cases incident in intervention and control areas in 1995 has begun.

D) Data management

Procedures to computerise data collected have been established and regular data entry ensures the maintenance of a data base of women examined, women detected positive and final diagnoses. Also population lists have been computerised and a software program have been produced to check systematically for duplicates. A file of registered cancer cases will be created.

A software program to perform automatic record linkage across the various files is currently being tested in Lyon.

Conclusions

The main problems indicated above are:

1) recruitment rate is still too low, should be brought up to at least 13,000 women examined per month;

2) compliance with referral of women detected positive at PE is far too low to have any impact on the background risk of dying from breast cancer in the intervention group.
It should be mentioned that the low compliance rate was the main problem shown by the pilot study; the reason for this was identified in the cost of transport and diagnostic examinations which most women could not afford. Therefore, provision to reimburse diagnosis expenses have been made in the project protocol.

   Women not complying with referral are being contacted to learn about the reasons of their refusal, and a variety of strategies is being implemented to attempt to ensure that diagnostic follow-up exceeds the minimum target of 75%..

3) Listing of the target population in the two experimental arms is still very incomplete.

Remedies are been sought.

With reference to the Statement of Work submitted with the proposal, all objectives were reached (till end of August) with the exception of the intervention itself which is some 5 months late, and the enumeration of the target population still incomplete.

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